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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte HERBERT BUSCHHAUS

Appeal 2014-009484
Application 11/909,888
Technology Center 1600

Before MELANIE L. McCOLLUM, JEFFREY N. FREDMAN, and ULRIKE W. JENKS, *Administrative Patent Judges*.

FREDMAN, *Administrative Patent Judge*.

DECISION ON APPEAL

This is an appeal[1] under 35 U.S.C. § 134 involving claims to a method for inhibiting mycotoxin production without reducing fungal infection. The Examiner rejected the claims as obvious. We have jurisdiction under 35 U.S.C. § 6(b). We reverse.

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[1] Appellant identifies the Real Party in Interest as Nippon Soda Co., Ltd. (*see* App. Br. 4).

Statement of the Case

Background

"Mycotoxin, which is formed by fungi, is known to have serious effects on the health of humans and animals . . . Therefore, it has been a long-standing task to find how to inhibit mycotoxin production in fungi which infect food crops" (Spec. 1:16–20).

The Claims

Claims 1, 2, 4, and 6 are on appeal. Independent claim 1 is representative and reads as follows:

> 1. A method for inhibiting mycotoxin production, comprising reducing mycotoxin content in harvested crops without reducing fungal infection of said harvested crops, when fungi control is incomplete, by spraying a fungicide containing a thiophanate-methyl agent as an active ingredient onto food crops.

The Issue

The Examiner rejected claims 1, 2, 4, and 6 under 35 U.S.C. § 103(a) as obvious over Cromey,[2] Tuszynski,[3] and Food and Environment Protection Act[4] (Ans. 2–6).

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[2] Cromey et al., *Effects of Fungicides Applied at Anthesis on Fusarium Head Blight and Mycotoxins in Wheat*, 55 New Zealand Plant Protection 341–6 (2002) ("Cromey").

[3] Tuszynski et al., US 2005/0215764 A1, published Sept. 29, 2005 ("Tuszynski").

[4] Food and Environment Protection Act, 1985, Part III Thiophanate-Methyl, Control of Pesticides Regulations 1986, Evaluation of Fully Approved or Provisionally Approved Products 1–170 (1992) ("Food and Environment Protection Act").

The Examiner finds Cromey teaches "inhibiting Fusarium head blight (FHB) of wheat . . . with the administration of a benzimadazole (carbendazim)" (Ans. 3). The Examiner finds Tuszynski teaches "interchangeability of carbendazim with a thiophanate-methyl and also supports the explicit use of thiophanate-methyl for the same exact plant pathogenic fungi" (Ans. 5).

The Examiner finds it obvious to "combine the agrichemicals, methods, and teachings of Cromey with the method/treatment guidelines and the chief agrichemical of the reference, thiophanate-methyl" (Ans. 5).

The issue with respect to this rejection is: Does the evidence of record support the Examiner's conclusion that Cromey, Tuszynski, and Food and Environment Protection Act renders claim 1 obvious?

Findings of Fact

1. Cromey teaches "Fusarium head blight (FHB) of wheat can cause yield losses of 30-70%. More importantly, affected grain may be less palatable to stock than healthy grain and may contain mycotoxins" (Cromey 341, abstract).

2. Table 1 of Cromey is reproduced, in part, below:

TABLE 1: Fungicides applied to wheat for Fusarium head blight control.

Treatment	Active ingredient	Application rate (g ai/ha)
Bavistin DF	carbendazim	250
Bavistin DF + Amistar	carbendazim + azoxystrobin	250 + 125
Twist	trifloxystrobin	125
BAS512	pyraclostrobin + epoxiconazole	rate confidential
Bavistin DF + Folicur 430SC	carbendazim + tebuconazole	250 + 189

"Treatments are listed in Table 1" (Cromey 342).

3. Table 2 of Cromey is reproduced, in part, below:

TABLE 2: Mean Fusarium head blight (FHB) incidence, yields, grain weights, *Fusarium* incidence and mycotoxins nivalenol (NIV) and deoxynivalenol (DON) in grain in plots that were either untreated or treated with fungicides at mid anthesis.

Treatment	Ears with FHB (%	Yield (t/ha)	Grain weight (mg) (%	Grains with *Fusarium*)	NIV (mg/kg)	DON (mg/kg)	NIV + DON (mg/kg)
Nil fungicide	9.1	5.3	51	6.4	0.17	0.15	0.32
Carbendazim	1.3	5.1	53	4.8	0	0	0
Carbendazim + azoxystrobin	5.5	5.4	52	6.8	0.11	0	0.11
Trifloxystrobin	5.0	5.1	52	9.5	0.05	0.11	0.16
BAS512	2.0	5.2	54	9.3	0.03	0.15	0.18
Carbendazim + tebuconazole	1.5	5.5	54	3.5	0	0.01	0.01

"Levels of the mycotoxins nivalenol (NIV) and deoxynivalenol (DON) differed between treatments (Table 2)" (Cromey 343).

4. Cromey teaches "[g]reatest reduction of FHB [fusarium head blight], grain *Fusarium* and mycotoxin levels was achieved with triazoles or carbendazim, or a combination of these" (Cromey 345).

5. Tuszynski teaches:

> For example, benzimidazole and thiophanate fungicides such as benomyl (methyl 1-(butylcarbamoyl)benzimidazol-2-ylcarbamate), fuberidazole (2-(2'-furyl)benzimidazole), thiabendazole (2-(4-thiazolyl)benzimidazole), carbendazim (methyl benzimidazol-2-ylcarbamate), thiophanate-methyl (1,2-bis(3-methoxycarbonyl-2-thioureido)benzene, and thiophanate (1,2-bis(3-ethoxycarbonyl-2-thioureido)benzene are known in the art for use against plant pathogenic fungi.

(Tuszynski ¶ 945).

Principles of Law

A prima facie case for obviousness "requires a suggestion of all limitations in a claim," *CFMT, Inc. v. Yieldup Int'l Corp*., 349 F.3d 1333, 1342 (Fed. Cir. 2003) and "a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does." *KSR Int'l Co. v. Teleflex Inc*., 550 U.S. 398, 418 (2007).

Analysis

We begin with claim interpretation because until a claim is properly interpreted, its scope cannot be compared to the prior art. Claim 1 requires "reducing mycotoxin content in harvested crops without reducing fungal infection . . . by spraying a fungicide". We interpret this limitation as requiring that the fungicide is applied in amounts that do not detectably kill or impede the growth of fungi infecting the crops, but the fungicide does function to detectably reduce mycotoxin production by the fungi. Claim 1 therefore does not encompass an embodiment where an amount of fungicide is sprayed onto the crops that is sufficient to kill or impede the growth of the fungi, and by so doing, inherently prevents mycotoxin production because no living or growing fungi are present.

Appellant contends the "cited references, moreover, fail to teach or suggest the presently claimed method for inhibiting mycotoxin production, comprising reducing mycotoxin content in harvested crops ***without*** reducing fungal infection (*without having to kill the fungi*) of said harvested crops, *i.e., when fungi control is incomplete*" (App. Br. 8).

The Examiner responds "Tuszynski combined with Cromey would still convey to the one of ordinary skill that controlled treatment with a fungicide containing a thiophanate-methyl agent would still reasonably occur. Whether applicants' description is fully explained by Cromey, the fact remains that fungi is being reduced, just not wholly" (Ans. 8).

We find that Appellants have the better position. The Examiner identifies no specific teaching in Cromey or Tuszynski to spray with a fungicide to reduce mycotoxin production without reducing fungal infection.

The Examiner is, essentially, contending that Cromey's administration of carbendazim would inherently result in reducing mycotoxin without killing fungi. However, Table 2 of Cromey evidences that treatment of fungicide reduced the presence of fusarium head blight from 9.1% in control plots to either 1.3%, 5.5% or 1.5% in plots treated with carbendazim alone or in combination with other agents (FF 3). Thus, in Cromey's experiments, spraying with fungicides resulted in reducing fungal infection, a result expressly excluded by claim 1. The evidence does not, therefore, demonstrate that spraying with a fungicide will inherently obtain the result required by claim 1. "Inherency . . . may not be established by probabilities or possibilities. The mere fact that a certain thing *may* result from a given set of circumstances is not sufficient." *MEHL/Biophile Int'l. Corp. v. Milgraum*, 192 F.3d 1362, 1365 (Fed. Cir. 1999).

Conclusion of Law

The evidence of record does not support the Examiner's conclusion that Cromey, Tuszynski, and Food and Environment Protection Act renders claim 1 obvious.

SUMMARY

In summary, we reverse the rejection of claims 1, 2, 4, and 6 under 35 U.S.C. § 103(a) as obvious over Cromey, Tuszynski, and Food and Environment Protection Act.

REVERSED